Durum Production

FarmFacts

Produced by Saskatchewan Agriculture and Food and Saskatchewan Rural Development

Durum is an important crop in Saskatchewan. The province produces about 80 per cent of the durum in Canada. Canada produces about 10 per cent of the world durum. About half of the world durum exports are supplied by Canada with the United States supplying approximately 42 per cent of the exports.

In the 10-year period 1978-87, durum was sown on about 18 per cent of the total wheat acres in Saskatchewan. The major durum growing areas are the brown and the dark brown soil zones.

Varieties

Choose a variety best suited to management practices on your farm. For example, if lodging and maturity are a concern then Sceptre would be the best variety to try since it has the shortest, strongest straw with early maturity. If early fall frosts and lodging are not a concern, you may wish to try Kyle, a taller, high-yielding variety.

Another consideration is to ensure that the varieties selected are of the best quality to maintain a high customer demand. The following varieties have very good milling quality: Arcola, Kyle, Medora, Sceptre and Wakooma. For detailed information on durum varieties, consult a copy of "Varieties of Grain Crops in Saskatchewan."

Seed Quality

Seed should be free of weed seeds and other grains, uniform in size, preferably plump, free of disease and, most importantly, have a high level of germination. A germination test of each lot of seed is a wise investment each and every year. Avoid surprises.

Red smudge on seed is not known to reduce germination or to significantly weaken newly germinated seedlings. Seed treatment will have little or no effect in controlling red smudge.

If durum seed, after cleaning, has very high levels of fungal blackpoint and/or penetrating smudge a seed treatment would be recommended as a precautionary measure. The potential for seedling damage by severe levels of blackpoint and penetrating smudge will show up in a germination test.

Currently, all registered durum varieties are susceptible to new races of loose smut, which are becoming widespread. It would be a good practice to check your fields after heading for signs of this disease.

Seed from fields where loose smut was evident should be treated with a seed dressing containing carbathiin (vitavax), which is the only fungicide registered for loose smut control.

Consider certified seed. Along with the guarantee of quality, you can deliver over-quota an additional 35 tonnes of commercial wheat and barley, then use the proceeds towards the purchase of certified seed.

Rotation

In the durum growing area where spring wheat and durum are rotated with summerfallow, inoculum of diseases common to both crops will generally be higher than if the wheat rotation is broken by the introduction of a broadleaf crop. Flax, lentil, mustard, safflower and sunflower can offer producers in the durum growing area an ideal opportunity to break away from cereal crops from time to time.

When planting durum into spring wheat or other cereal stubble there is a risk of loss because of volunteer plants. The following levels of contamination by wheat and other cereal grains are allowed within each grade of durum.

	Maximum Limits	
Grade Name	Classes of Wheat Other than Durum	Total Foreign Material Including Other Cereal Grains; Barley, Rye, Oat, etc.
No. #1 CW Amber Durum	2.0%	0.5%
No. #2 CW Amber Durum	3.5%	1.5%
No. #3 CW Amber Durum	5.0%	2.0%
No. #4 CW Amber Durum	10.0%	3.0%
No. #5 CW Amber Durum	49.0%	10.0%

Source: Canadian Grain Commission. Grain grading handbook for Western Canada. Effective August 1, 1989.

Seeding Practices

The average seeding rate for durum in the brown and dark brown soil zones is between 75 and 90 pounds per acre, and can be as high as 120 pounds per acre for the clay soils in the dark brown, black and gray soil zones. In general, lower seeding rates are used under low moisture conditions, and higher rates under high moisture conditions. Higher seeding rates may provide better competition with weeds, and also may hasten maturity by two to three days.

Late-maturing varieties should be seeded early. Early maturing varieties may be seeded later, but late seeding may increase the risk of damage from early fall frost or from wet harvest weather. Kyle appears to have better weathering resistance than other durum varieties.

The optimum seeding depth is four to five centimetres (two inches). However, a good rule of thumb is to seed into a moist, firm seedbed. When soil incorporated herbicides are used, read and follow label directions.

Packing after seeding improves soil to seed contact, reduces moisture loss, and ensures more uniform and rapid germination. The proper amount of packing is highly dependent on soil texture, moisture, trash cover and amount of preseeding tillage. Therefore, the number of packing operations required to get good soil-to-seed contact must be made on a field to field basis.

Fertilizer Practices

The best procedure for deciding what fertilizer is required for any field is to conduct a soil test. From the soil test data, you can plan the amount of fertilizer according to expected moisture, financial resources and expected market prices.

Soil nitrogen varies greatly from field to field and from year to year. In the past, it was commonly accepted that summerfallow fields did not generally need nitrogen fertilizer. However, it is becoming well known that when stored soil moisture is good, summerfallow fields can be short of nitrogen to produce an optimum yield. Keeping this in mind you could find it cost effective to soil test each year for nitrogen on summerfallow as well as on stubble fields.

Under any economic situation, it is unwise to seed a crop not knowing whether you have enough nitrogen to produce a good yield, or by applying extra nitrogen just in case it might be low.

Many producers are concerned about the short time for soil testing for nitrogen between spring thaw and seeding. The Saskatchewan Soil Testing Lab is set up to offer a rapid turnaround of usually less than one week. With this service you can check nitrogen requirements quickly.

Phosphate fertilizer requirements can be estimated from previous soil test results because phosphorus levels do not change much from year to year.

Weed Control

A weed control program may include controlling weeds with tillage, with crop competition and with a herbicide best suited to control the weeds present in each field.

Competition between weeds and crops is a complex process. The extent of competition and subsequent effects on crop yield and quality will depend on a number of factors. The key factors influencing weed-crop competition include species, density, duration of competition, and the relative time of emergence of crop and weed species. The contribution of any one of these factors will vary depending on the influence of the other factors.

It is a good practice to assess each field for weeds and plan your weed control program accordingly. Use the control method and/or product that is most cost effective. For more details, review the annual publication, "Chemical Weed Control in Cereal, Oilseed, Pulse and Forage Crops."

Insects

Inspect fields weekly for the presence of Russian wheat aphid. Infested plants will show white or purple longitudinal stripes. Biology and control of this aphid are described in the leaflet "Russian Wheat Aphid."

Grasshoppers may become a problem in certain areas of the province. Examine the Grasshopper Forecast Map to determine if your area has a potential for grasshopper infestation. Control measures are described in the publication "Grasshopper Control."

Durum wheat generally has more thickly-walled stems than the hollow-stemmed common wheat. Therefore, durum will have fewer cut stems under conditions of low to moderate levels of sawfly infestation.
Inspect fields within three weeks of emergence for cutworm damage.

If wireworm damage has been noted in previous years, treat the seed with a dual purpose seed dressing before planting into infested fields.

Stored durum should be checked periodically for grain insects. There have been numerous reports of rusty grain beetles and red flour beetles in past years.

Diseases

All currently grown varieties of durum have very good resistance to leaf and stem rust and are very resistant to bunt. However, all are susceptible to the new races of loose smut which are becoming widespread. Farmers are encouraged to treat durum seed which was selected from fields showing loose smut. Carbathiin (Vitavax) is the only registered fungicide that is effective in controlling loose smut.

Septoria glume blotch often appears on upper leaves and heads in damp years. The extent of yield losses depends on the earliness and severity of infection and the frequency of rain.

Tan spot commonly causes leaf blotching of durum, and

occasionally causes a pink or red kernel discoloration known as red smudge. No commonly grown variety of durum has acceptable resistance to this disease. Tan spot development is also dependent on wet weather.

Showers after heading may favor red smudge, however, there is no effective method of predicting if this symptom will appear. Red smudge is not known to affect the quality of grain for seed, however, may lower the grade of commercial durum. Fungicide seed treatments will not prevent red smudge from occurring, however, they may help prevent seedling infection from some forms of blackpoint and penetrating smudge.

Crop rotation with broadleaf crops should help to reduce levels of tan spot and Septoria. Both diseases overwinter and reproduce on infected wheat crop residues. Tan spot more so than Septoria can also be spread by wind to neighboring fields.

Root rot can appear in any year and can cause some yield loss. (Shallow seeding and rapid emergence seem to help reduce the incidence of this disease.) There are no effective chemical controls for this disease. Refer to the "Varieties of Grain Crops for Saskatchewan" for variety resistance to root rot.

Harvesting

Harvesting quality durum and malting barley have many similarities. Sprouting, weathering and kernel damage resulting in grade reduction are major concerns.

Durum kernels are very hard, especially when over-dried, and are susceptible to physical damage. Proper combine adjustments will reduce kernel damage. Adjustments include reduced cylinder speed (up to 300 rpm slower than other classes of wheat), slightly larger cyclinder-concave clearance than used for other classes of wheat and no free grain in the return system.

Proper timing of harvest will reduce physical damage, as well as reduce the risk of sprouting and weathering damage. The drier the kernels, the greater the potential for kernel damage. Harvesting durum damp or tough will reduce kernel damage, however, a drying system must then be used. The risk of sprouting and weathering damage can be minimized by swathing at the proper stage and combining as soon as it is dry or by combining the grain damp or tough and promptly drying.

Marketing Prospects and Durum Prices

For many producers in Saskatchewan, durum and red spring wheat are interchangeable grains. They can be sown and harvested with the same equipment. Management practices are very similar. However, there are variations in yields, grades and quotas which must be considered. Generally, a premium price for durum will return a higher net income to producers. Therefore, it is important to know whether durum is trading at a premium or at par with spring wheat.

In recent years, durum prices have rarely fallen below spring wheat prices. The reason is that when durum prices are equal to spring wheat prices, durum displaces spring wheat in pasta products and other dishes such as couscous. Since the production of durum relative to other wheat is small, all durum can easily be marketed. Therefore, it generally trades at par to spring wheat or above.

The quality of pasta and couscous is dependent on durum being used. It is possible to substitute bread wheat for durum in these products to a limited amount without having a large drop in quality. Therefore, when durum is in somewhat short supply the price can increase relative to bread wheats.

Durum prices will continue to follow the overall wheat markets into the future. If wheat prices increase or decrease, the relative level of durum prices will also increase or decrease. Durum prices will also fluctuate around the wheat price depending on the supply and demand conditions for durum. A plentiful supply of durum can drive durum prices to a slight discount to wheat and tight supplies can result in a substantial premium. This situation will vary every year and a producer contemplating growing durum should obtain information on the current level of durum price, its relative level to wheat, and the outlook for the year. Farmers should also be aware that durum prices and premiums or discounts can change substantially during the year as the level of durum production around the world and especially in North Dakota and Saskatchewan becomes known.